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EXAMINER

VANORE, DAVID A

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2881

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,697	Applicant(s) BARRERA ET AL.	
	Examiner DAVID A. VANORE	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 23, 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 and 62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-25 is/are allowed.
- 6) ☒ Claim(s) 1-17 and 62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1, 3-17, and 62 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Dharap et al. ("Nanotube film based on single-wall carbon nanotubes for strain sensing").
2. Regarding claim 1, Dharap et al. teaches a device consisting of a carbon nanotube film ("Nanosensor" in Fig. 3) is attached to a specimen whose strain is to be measured and coupled to an electrical probe (Four point probe in Col. 2 at page 380) which measures an electrical property of the film.
3. Regarding claim 3, as pointed out above the electrical probe is a four point probe.
4. Regarding claim 4, Dharap et al. at Col. 2 on page 380, recites that the electrical measurement of strain is resistance based, therefore the property measures is resistance.
5. Regarding claim 5, the mechanical condition measured is strain, note page 380 again.
6. Regarding claim 6, the carbon nanotubes are single walled carbon nanotubes (SWCNT's), note page 380, column 1.

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7. Regarding claim 7, the carbon nanotubes of Dharap et al. are processed with DMF, physically filtered, dried, and peeled from a film to produce a homogeneity in tube length of about 10 micrometers. (Page 380, Col. 1-2).
8. Regarding claims 8 and 62, the reaction of the SWCNT's with DMF, along with the filtering, drying, and bonding to PVC with an epoxy comprises modification by at least solvation.
9. Regarding claim 9, Dharap et al. recites the carbon nanotubes are implemented as buckypaper.
10. Regarding claim 10, the nanotubes are incorporated into an epoxy matrix.
11. Regarding claim 11, the nanotube film is attached to a PVC material (Col. 2, page 380).
12. Regarding claims 12-15, Dharap et al. concludes that the strain sensor discussed would have application as a strain sensor at the macro scale being incorporated in a structural element where a Raman spectroscopy based sensor would not be feasible, such as an aircraft wing.
13. Regarding claim 16-17, the nanotube film consists of a three dimensional, nearly flat array attached to a material under test, Note Fig. 2. A three dimensional array encompasses a two dimensional array.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dharap et al.

16. Dharap et al. teaches all the required limitations of claim 2 set forth in claim 1, but fails to explicitly recite the computational hardware and software and accessible database with information thereon for correlating detected electrical properties to previously measured standards.

17. The Dharap et al. system measures an electrical property of a system under test and the elements of claim 2 are for the automation of determining meaning of the signal produced by the electrical probe indicating the property sensed.

18. Claim 2 recites that the data encoded on the database is previously measured and therefore comprises a library or archive of signals for assigning a mechanical condition to the sensed condition of the electrical probe.

19. The computer hardware and software, in conjunction with the accessible database of claim 2 automates the process of assigning meaning to the output of the Dharap et al. signal.

20. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a computer in conjunction with an electrical probe device and sensing element to automate the process of assigning meaningful information to the sensed output of the sensing element and electrical probe because a computer is well known to be an efficient means of automating the processing of detected data.

Response to Arguments

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21. Applicant's arguments filed June 23, 2009 have been fully considered and they are persuasive.

22. The rejection of claim 2 under 35 U.S.C. 101 is withdrawn.

23. The rejection of claims 1, 3-17, and 62 under 35 U.S.C. 102(b) is withdrawn and a rejection using the previously cited Dharap et al. reference under 35 U.S.C. 102(a) has been applied.

Allowable Subject Matter

24. Claims 18-25 are allowed for the reasons previously set forth.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID A. VANORE whose telephone number is (571)272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David A Vanore/
Primary Examiner, Art Unit 2881